

Ice Ban

Description:

MoDOT studied many brochures about Ice Ban M50 (50% Ice Ban and 50% magnesium chloride), a new bio-degradable, non-corrosive product that could be used to melt snow and ice. Ice Ban M50 was chosen at the vendors suggestion because a 50 - 50 mix of Ice Ban and magnesium chloride has more stability than straight Ice Ban. Straight Ice Ban begins to coagulate at 15°F and becomes a solid at 5°F. We heard several presentations at conferences and decided to test the Ice Ban M50 during the winter of 1997-1998 and compare it to salt brine, our current liquid chemical for snow and ice control.

The Ice Ban laboratory furnished results which indicated various percentages of Ice Ban M50 can reduce corrosion when mixed with salt brine. For example, a solution of 10% Ice Ban M50 mixed with a 90% salt brine solution (23 1/2% salt) indicates a reduction in corrosion by 58.7%. District 4 ordered 5,000 gallons and District 6 ordered 10,000 gallons of Ice Ban M50 for testing purposes.

Advantages/Disadvantages

One advantage of Ice Ban M50 is the reduction in corrosion. Ice Ban's laboratory tests demonstrated that an addition of 20% Ice Ban to any chloride product negates the chloride ions, thus reducing corrosion to the equivalent of tap water.

The disadvantage of Ice Ban M50 is the cost at \$0.86 per gallon (which is 21.5 times more than salt brine). It also has handling problems due to the strong, offensive odor and the low viscosity which makes pumping difficult. The lower the temperature, the lower the viscosity and this creates handling and pumping problems.

Cost:

We are producing salt brine for \$0.04 per gallon versus the \$0.86 per gallon for Ice Ban M50. From the perspective of cost only, this represents a benefit/cost ratio of 21.5:1 for salt brine.

Conclusions:

Ice Ban M50 is more expensive, has a bad odor and difficult to handle when compared to salt brine. We did not test the long term effects of Ice Ban M50 such as checking corrosion rates of bridges or vehicles. This would involve extensive corrosion testing of bridges and vehicles and with the disadvantages we saw with Ice Ban M50, we decided against the long term study. The anti-corrosion characteristics is a positive selling point but more study would have to be undertaken to prove this point to offset the disadvantages of Ice Ban M50. Therefore, we do not recommend the use of Ice Ban M50 at this time.

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